

In the Claims:

1. (Previously presented.) A method for treating a well penetrating a subterranean formation, comprising introducing into the well a selectively configured porous particulate material wherein the porous particulate material of the selectively configured porous particulate material is a porous ceramic having inherent or induced permeability and wherein the apparent specific gravity of the selectively configured porous particulate material is less than the apparent specific gravity of the porous ceramic.

2. (Cancelled.)

3. (Previously presented.) A method for treating a well penetrating a subterranean formation, comprising introducing into the well a porous particulate selected from the group consisting of natural ceramic materials, polyolefins, styrene-divinylbenzene copolymers and polyalkylacrylate esters wherein the porous particulate has inherent or induced permeability.

4. (Previously presented.) The method of Claim 3, wherein the porous particulate is a selectively configured porous particulate material.

5. (Previously presented.) The method of Claim 1, wherein the porous ceramic is a relatively lightweight and/or substantially neutrally buoyant particle.

6. (Cancelled.)

7. (Previously presented.) The method of Claim 1, wherein the selectively configured porous particulate material exhibits crush resistance under conditions from about 250 to about 8,000 psi closure stress.

8. (Previously presented.) The method of Claim 1, wherein the selectively configured porous particulate material is suspended in a carrier fluid.

9. (Previously presented.) The method of Claim 1, wherein the porous ceramic has a porosity and permeability such that a fluid may be drawn at least partially into its porous matrix by capillary action.

10. (Previously presented.) The method of Claim 1, wherein the porous ceramic has a porosity and permeability such that a penetrating material may be drawn at least partially into its porous matrix using a vacuum and/or may be forced at least partially into its porous matrix under pressure.

11. (Previously presented.) The method of Claim 1, wherein the selectively configured porous particulate material is a porous ceramic coated or penetrated with a liquid resin, plastic, cement, sealant, or binder.

12. (Previously presented.) The method of Claim 1, wherein the selectively configured porous particulate material is a porous ceramic coated or penetrated with a phenol, phenol formaldehyde, melamine formaldehyde, urethane, or epoxy resin.

13. (Previously presented.) The method of Claim 1, wherein the selectively configured porous particulate material is a porous ceramic penetrated with nylon, polyethylene or polystyrene or a combination thereof.

14. (Previously presented.) The method of Claim 11, wherein the penetrating material and/or coating of the selectively configured porous particulate material is capable of trapping or encapsulating a fluid having an apparent specific gravity less than the apparent specific gravity of the matrix of the porous ceramic.

15. (Original.) The method of Claim 14, wherein the fluid is a gas.

16. (Previously presented.) The method of Claim 1, wherein the selectively configured porous particulate material has a coating layer or penetrating material which is a liquid having an apparent specific gravity less than the apparent specific gravity of the matrix of the porous ceramic.

17. (Previously presented.) The method of Claim 1, wherein the selectively configured porous particulate material comprises a multitude of coated porous ceramic particulates bonded together and coated or penetrated with a curable resin.

18. (Previously presented.) A method for treating a well penetrating a subterranean formation under conditions of from 2,500 to 10,000 psi closure stress, comprising introducing into the well a proppant of a selectively configured porous particulate material, the selectively configured porous particulate material being a porous particulate material manufactured with a glazing material or treated with a penetrating layer, coating layer or glazing material, wherein the selectively configured porous particulate material exhibits crush resistance under the closure stress conditions and further wherein the strength of the selectively configured porous particulate material is greater than the strength of the porous particulate material.

19. (Previously presented.) A method for treating a well penetrating a subterranean formation, comprising introducing into the well a proppant of a selectively configured porous particulate material in a non-gelled carrier fluid, the selectively configured porous particulate material comprising a composite of a porous particulate material and a non-porous glazing material or a porous particulate material treated with a penetrating material, coating layer or glazing layer such that the porous particulate of the selectively configured porous particulate material is at least partially filled with air or a gas.

20. (Original.) The method of Claim 19, wherein the non-gelled carrier fluid contains a friction reducer.

21. (Original.) The method of Claim 19, wherein the apparent specific gravity of the selectively configured porous particulate material is less than the apparent specific gravity of the porous particulate material.

22. (Original.) The method of Claim 19, wherein the well is horizontal or is a deviated well having an angle with respect to the vertical of between about 0 degrees and about 90 degrees.

23. (Original.) The method of Claim 22, wherein the well is a deviated well having an angle with respect to the vertical of between about 30 degrees and about 90 degrees.

24. (Previously presented.) The method of Claim 1, wherein the porous ceramic has a maximum length-based aspect ratio of equal to or less than about 5.

25. (Previously presented.) The method of Claim 18, wherein the glazing material, penetrating layer or coating layer is non-porous.

26. (Previously presented.) The method of Claim 4, wherein the apparent specific gravity of the selectively configured porous particulate material is less than the apparent specific gravity of the porous particulate material.

27. (Previously presented.) The method of Claim 3, wherein the porous particulate is a polyolefin.

28. (Previously presented.) The method of Claim 11, wherein the coating layer or penetrating material is an ethyl carbamate-based resin.

29. (Previously presented.) The method of Claim 1, wherein the selectively configured porous particulate material has an apparent density from about 1.1

g/cm³ to about 2.6 g/cm³ and a bulk apparent density from about 1.03 g/cm³ to about 1.4 g/cm³.

30. (Cancelled.)

31. (Previously presented.) The method of Claim 1, wherein the size of the selectively configured porous particulate material is between from about 200 mesh to about 8 mesh.

32. (Previously presented.) The method of Claim 1, wherein the selectively configured porous particulate has a coating layer or penetrating material in an amount of from about 0.5 to about 10% by weight of total weight.

33. (Original.) The method of Claim 32, wherein the thickness of the coating layer of the selectively configured porous particulate material is from about 1 to about 5 microns.

34. (Previously presented.) The method of Claim 1, wherein the selectively configured porous particulate material is introduced or pumped into the well as neutrally buoyant particles in a carrier fluid.

35. (Original.) The method of Claim 34, wherein the carrier fluid is a completion or workover brine.

36. (Original.) The method of Claim 34, wherein the carrier fluid is salt water, fresh water, a liquid hydrocarbon, or a gas or a mixture thereof.

37. (Original.) The method of Claim 36, wherein the gas is nitrogen or carbon dioxide.

38. (Original.) The method of Claim 34, wherein the fluid pumped into the well further comprises a gelling agent, crosslinking agent, gel breaker, surfactant, foaming agent, demulsifier, buffer, clay stabilizer, acid or a mixture thereof.

39. (Previously presented.) The method of Claim 1, wherein the permeability of the selectively configured porous particulate material is less than the permeability of the porous ceramic.

40. (Previously presented.) The method of Claim 1, wherein the selectively configured porous particulate material is introduced into the well with a liquefied gas or foamed gas carrier fluid or a mixture thereof.

41. (Original.) The method of Claim 40, wherein the liquefied gas or foamed gas carrier fluid is a liquid carbon dioxide based system.

42. (Original.) The method of Claim 40, wherein the liquefied gas or foamed gas carrier fluid is nitrogen.

43. (Original.) The method of Claim 40, wherein the liquefied gas or foamed gas carrier fluid is a mixture of liquid carbon dioxide and nitrogen.

44. (Original.) The method of Claim 40, wherein the liquefied gas or foamed gas carrier fluid is a foam of nitrogen in liquid carbon dioxide.

45. (Previously presented.) A method for treating a well penetrating a subterranean formation, comprising introducing into the well a proppant/sand control particulate of a selectively configured porous particulate material, the selectively configured porous particulate material being a porous particulate material manufactured with a non-porous glazing material or treated with a non-porous penetrating layer, coating layer or glazing material wherein the apparent density or apparent specific gravity of the selectively configured porous particulate material is less than the apparent density

or apparent specific gravity of the porous particulate material and further wherein the porous particulate has inherent or induced permeability.

46. (Original.) The method of Claim 45, wherein the selectively configured porous particulate material is a suspension of the porous particulate material and a porous matrix, and further wherein the suspension, when introduced into the well, forms a fluid-permeable gravel pack in an annular area defined between the exterior of a screen assembly and the interior of the wellbore.

47. (Original.) The method of Claim 45, wherein the selectively configured porous particulate material is a porous particulate material having a glazed surface.

48. (Original.) The method of Claim 47, wherein the glazed surface of the porous particulate material enhances the ease of multi-phase fluid flow through a particulate pack.

49. (Original.) The method of Claim 47, wherein the glazed surface of the porous particulate material enhances the ease of high rate turbulent gas flow through a particulate pack.

50. (Previously presented.) The method of Claim 5, wherein the porous ceramic is a substantially neutrally buoyant particle and is introduced or pumped into the well as a suspension in a storage fluid wherein the density of the storage fluid and porous ceramic is of near or substantially equal density.

51. (Previously presented.) The method of Claim 3, wherein the porosity and permeability of the porous particulate is such that a fluid may be drawn at least partially into the porous matrix by capillary action.

52. (Cancelled)

53. (Cancelled)

54. (Previously presented.) The method of Claim 64, wherein the apparent specific gravity of the selectively configured porous particulate material is less than the apparent specific gravity of the porous particulate material.

55. (Previously presented.) The method of Claim 64, wherein the porous particulate material is a relatively lightweight and/or substantially neutrally buoyant particle.

56. (Cancelled)

57. (Previously presented.) The method of Claim 3, wherein the porous particulate material is a suspension of the porous particulate in a carrier fluid.

58. (Previously presented.) The method of Claim 64, wherein the selectively configured porous particulate material comprises a porous particulate material coated or penetrated with a liquid resin, plastic, cement, sealant, or binder.

59. (Previously presented.) The method of Claim 58, wherein the liquid resin, plastic, cement, sealer, or binder is selected from the group consisting of a phenol, phenol formaldehyde, melamine formaldehyde, urethane, epoxy resin, nylon, polyethylene or polystyrene or a combination thereof.

60. (Cancelled)

61. (Cancelled)

62. (Previously presented.) The method of Claim 58, wherein the liquid resin is a curable resin and further wherein the selectively configured porous particulate material comprises a multitude of coated particulates bonded together.

63. (Previously presented.) A method for treating a well penetrating a subterranean formation, comprising introducing into the well a selectively configured porous particulate material, wherein the selectively configured porous particulate material is a porous particulate material treated with a penetrating layer, coating layer or glazing material wherein the amount of penetrating layer, coating layer or glazing material in the selectively configured porous particulate material is between from about 0.5 to about 8% by weight and further wherein the apparent specific gravity of the selectively configured porous particulate material is less than the apparent specific gravity of the porous material.

64. (Previously presented.) A method for treating a well penetrating a subterranean formation, comprising introducing into the well a selectively configured porous particulate material, wherein the selectively configured porous particulate material is a porous particulate material treated with a penetrating or coating layer wherein the penetrating or coating layer penetrates the porous particulate and encapsulates air within the pores of the particulate.

65. (Previously presented.) The method of Claim 3, wherein the porous particulate material is introduced into the well with a liquefied gas or foamed gas carrier fluid or a mixture thereof.

66. (Previously presented.) The method of Claim 65, wherein the liquefied gas or foamed gas carrier fluid is a liquid carbon dioxide based system.

67. (Previously presented.) The method of Claim 65, wherein the liquefied gas or foamed gas carrier fluid is nitrogen.

68. (Previously presented.) The method of Claim 66, wherein the liquefied gas or foamed gas carrier fluid is a mixture of liquid carbon dioxide and nitrogen.

69. (Previously presented.) The method of Claim 4, wherein the selectively configured porous particulate material exhibits crush resistance under conditions from 2,500 psi to 10,000 psi closure stress.

70. (Previously presented.) The method of Claim 3, wherein the selectively configured porous particulate material is a porous particulate coated or penetrated with a liquid resin, plastic, cement, sealant, or binder.

71. (Previously presented.) The method of Claim 3, wherein the natural ceramic is a lightweight volcanic rock

72. (Previously presented.) The method of Claim 71, wherein the lightweight volcanic rock is selected from the group consisting of pumice, perlite, Hawaiian basalt, Virginia diabase and Utah rhyolite.

73. (Previously presented.) The method of Claim 45, wherein the apparent specific gravity of the porous particulate material is less than or equal to 1.75.

74. (Previously presented.) The method of Claim 73, wherein the apparent specific gravity of the porous particulate material is less than or equal to 1.25.

75. (Previously presented.) The method of Claim 1, wherein the selectively configured porous particulate materials is introduced into the well at concentrations sufficient to achieve a partial monolayer fracture.

76. (Previously presented.) The method of Claim 3, wherein the porous particulate is introduced into the well at concentrations sufficient to achieve a partial monolayer fracture.

77. (Previously presented.) The method of Claim 18, wherein the closure stress conditions are from 3,000 to 10,000 psi.

78. (Previously presented.) The method of Claim 18, wherein the selectively configured porous particulate is introduced into the well at concentrations sufficient to achieve a partial monolayer fracture.

79. (Previously presented.) The method of Claim 45, wherein the selectively configured porous particulate is introduced into the well at concentrations sufficient to achieve a partial monolayer fracture.

80. (Previously presented.) The method of Claim 63, wherein the selectively configured porous particulate is introduced into the well at concentrations sufficient to achieve a partial monolayer fracture.

81. (New.) A method of treating a well penetrating a subterranean formation comprising introducing into the well a selectively configured porous particulate material comprising a composite of a porous organic polymeric material treated with a penetrating, coating and/or glazing material wherein air or a fluid is encapsulated by or trapped within the porosity of the selectively configured porous particulate material.

82. (New.) The method of Claim 81, wherein the selectively configured porous particulate material is a porous polyolefin treated with a coating layer.

82. (New.) The method of Claim 81, wherein the strength of the selectively configured porous particulate material is greater than the strength of the porous organic polymeric material.

84. (New.) The method of Claim 81, wherein the selectively configured porous particulate material is introduced into the well as a slick water fracturing fluid.

85. (New.) The method of Claim 81, wherein the porous organic polymeric material is a relatively lightweight and/or substantially neutrally buoyant particle.

86. (New.) The method of Claim 81, wherein the coating layer or penetrating layer is present in the selectively configured porous particulate in an amount of from about 0.5 to about 10% by weight of total weight.

87. (New.) A method of fracturing a hydrocarbon-bearing formation which comprises introducing to the formation a proppant comprising a selectively configured porous particulate material, the selectively configured porous particulate comprising a composite of a porous organic polymeric material treated with a penetrating layer, coating layer or glazing material wherein the selectively configured porous particulate material is introduced into the well at concentrations sufficient to achieve a partial monolayer fracture.

88. (New.) The method of Claim 87, wherein the selectively configured porous particulate material is a porous polyolefin treated with a coating layer.

89. (New.) A method of fracturing a hydrocarbon-bearing formation comprising introducing into the formation a selectively configured porous particulate material in a transport fluid, wherein the selectively configured porous particulate material comprises a composite of a porous organic polymeric material treated with a

penetrating and/or coating material and further wherein the penetrating and/or coating material penetrates the organic polymeric material, without invading the porosity of the organic polymeric material, to effectively encapsulate air within the porosity of the organic polymeric material.

90. (New.) The method of Claim 89, wherein the organic polymeric material is an ultra-lightweight organic polymeric material

91. (New.) The method of Claim 89, wherein the selectively configured porous particulate material, when introduced into the well, is suspended in a transport fluid.

92. (New.) The method of Claim 91, wherein the transport fluid is salt water, fresh water, a liquid hydrocarbon, or a gas or a mixture thereof.

93. (New.) The method of Claim 91, wherein the transport fluid further comprises a gelling agent, crosslinking agent, gel breaker, surfactant, foaming agent, demulsifier, buffer, clay stabilizer, acid or a mixture thereof.